
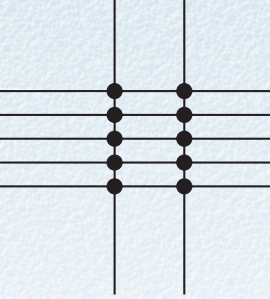

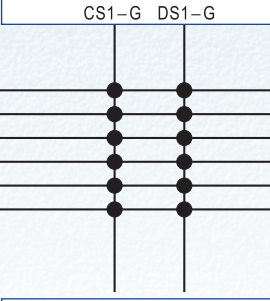




Twin-rod cylinder——TN, TR Series

Product series

Series name	Acting type	Bore size	Collocation of sensor switch					
			CS1-J DS1-J	CS1-G DS1-G				
 <p>TN Series</p>	Double acting	10 16 20 25 32						
 <p>TR Series</p>			Double acting	6 10 16 20 25 32				
Page					298	300	403	

Installation and application

1. When load changes in the work, the cylinder with abundant output capacity shall be selected.
2. Relative cylinder with high temperature resistance or corrosion resistance shall be chosen under the condition of high temperature or corrosion;
3. Necessary protection measure shall be taken in the environment with higher humidity, much dust or water drops, oil dust and welding dregs.
4. Dirty substances in the pipe must be eliminated before cylinder is connected with pipeline to prevent the entrance of particles into the cylinder;
5. The medium used by cylinder shall be filtered to 40 μ m or below.
6. As both the front cover and piston are short, too large stroke can not be selected.
7. Anti-freezing measure shall be adopted under low temperature environment to prevent moisture freezing.
8. The cylinder shall avoid radial load in operation to maintain the normal and extend service life.
9. If the cylinder is dismantled and stored for a long time, please conduct anti-rust treatment to the surface. Anti-dust cap shall be inserted into the inlet and outlet ports. As the precision of the manufacture and guide is high, Please do not dismantle the fixed block or cylinder cover .

Criteria for selection: Cylinder thrust

Unit: Newton(N)

Bore size (mm)	Rod size (mm)	Acting type	Pressure area (mm ²)	Operating pressure(MPa)							
				0.1	0.2	0.3	0.4	0.5	0.6	0.7	
6	4	Double acting	Push side	56.5	5.7	113.	17.0	22.6	28.3	33.9	39.6
			Pull side	31.4	3.1	6.3	9.4	12.6	15.7	18.8	22.0
10	6	Double acting	Push side	157.1	15.7	31.4	47.1	62.8	78.6	94.3	110.0
			Pull side	100.5	10.1	20.1	30.2	40.2	50.3	60.3	70.4
16	8	Double acting	Push side	402.1	40.2	80.4	120.6	160.8	201.1	241.3	281.5
			Pull side	301.6	30.2	60.3	90.5	120.6	150.8	181.0	211.1
20	10	Double acting	Push side	628.3	62.8	125.7	188.5	251.3	314.2	377.0	439.8
			Pull side	471.2	47.1	94.2	141.4	188.5	235.6	282.7	329.8
25	12	Double acting	Push side	981.7	98.2	196.4	294.5	392.7	490.9	589.0	687.2
			Pull side	755.6	75.6	151.1	226.7	302.2	377.8	453.4	528.9
32	16	Double acting	Push side	1608.5	160.9	321.7	482.6	643.4	804.3	965.1	1126.0
			Pull side	1206.4	120.6	241.3	361.9	482.6	603.2	723.8	844.5



TN,TR

Twin-rod cylinder



TN Series



Symbol



Product feature

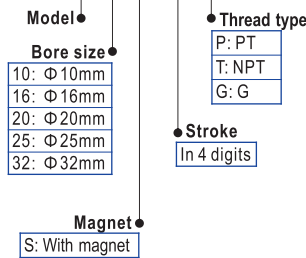
1. Enterprises standard is implemented.
2. Embedded installation and fixation mode saves the installation space.
3. It is good resistance to bending and twisting moments.
4. Mounting holes on three sides facilitates multi-position mounting.
5. Bumper in front of the barrel can adjust the stroke of cylinder and relieve impact.
6. Standard configuration of this series has magnet and the type without magnet is not available.

Ordering code

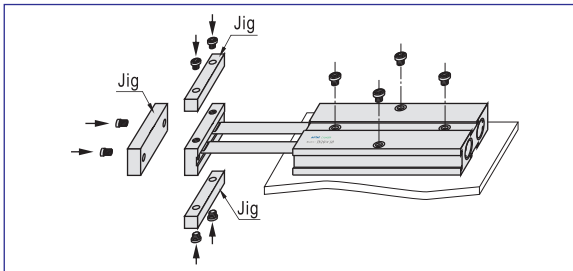
Model can be changed Ordering code. Example:
 Production type: TN
 Bore size: 32mm
 Stroke: 175mm
 Magnet: With magnet
 Thread type: NPT

Model: TN -32 x 175-S-T

Ordering code: TN 32 S 0175 T



How to mount



Specification

Bore size(mm)	10	16	20	25	32
Acting type	Double acting				
Fluid	Air(to be filtered by 40 μm filter element)				
Operating pressure	0.1~1.0MPa(14~145psi)				
Proof pressure	1.5MPa(215psi)				
Temperature °C	-20~70				
Speed range mm/s	30~500				
Adjustable stroke mm	-10~0				
Stroke tolerance	+1.0 0				
Cushion type	Bumper				
Non-rotating tolerance ①	±0.4°				±0.3°
Port size ②	M5 x 0.8				1/8"

① Retract position.

② PT thread, NPT thread and G thread are available. Add) Refer to P403-426 for detail of sensor switch.

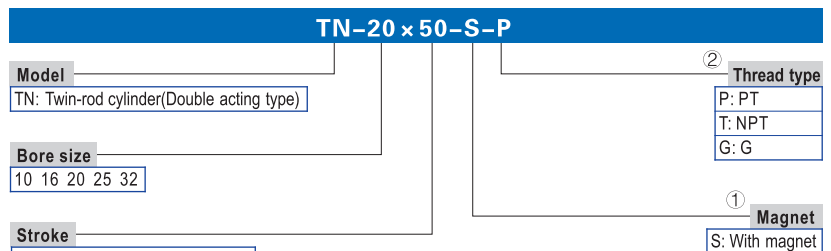
Stroke

Bore size (mm)	Standard stroke (mm)													Max. stroke	
10	10	20	30	40	50	60	70	80	90	100					100
16	10	20	30	40	50	60	70	80	90	100	125	150	175	200	200
20	10	20	30	40	50	60	70	80	90	100	125	150	175	200	200
25	10	20	30	40	50	60	70	80	90	100	125	150	175	200	200
32	10	20	30	40	50	60	70	80	90	100	125	150	175	200	200

Note) 1. Please contact the company for other special strokes.

2. The dimensions of non-std stroke cylinder has the same dimensions as the next longer stroke std. stroke cylinder. e.g. 23mm stroke cylinder has the same dimensions of 25 std. stroke cylinder.

Explain of model



① TN Series are all with magnet.

② When the thread is standard, the code is blank.

Inner structure and material of major parts

NO.	Item	Material	NO.	Item	Material
1	Piston rod B	Φ32 S45C Other SUS304	12	Body	Aluminum alloy
2	Screw	Carbon steel	13	Bumper	TPU
3	Bumper	POM	14	Magnet holder	Φ10 SUS303 Other Aluminum alloy
4	Adjustable nut	Carbon steel	15	Piston seal	NBR
5	Piston rod A	S45C	16	Wear ring	Wear resistant material
6	Fixing plate	Free cutting steel	17	Piston	Φ10 SUS303 Other Aluminum alloy
7	Screw	Carbon steel	18	Seal ring	NBR
8	C clip	Spring steel	19	Bumper	TPU
9	Wiper seal	NBR	20	Back cover	Aluminum alloy
10	Front cover	Aluminum alloy	21	Magnet	Sintered metal(Neodymium-iron-boron)
11	O-ring	NBR			

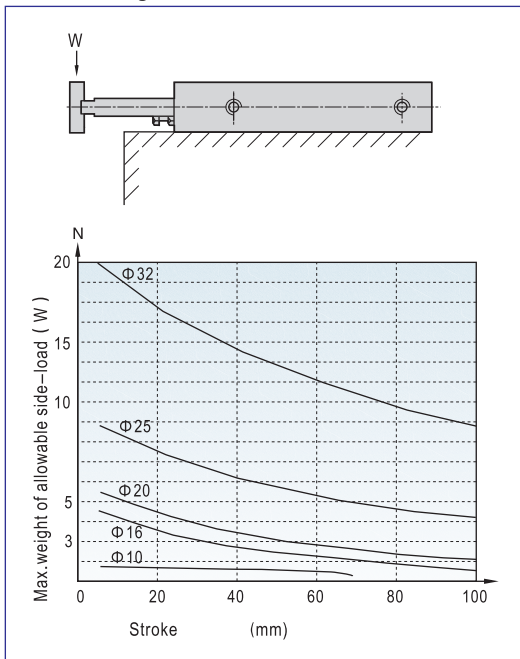


Twin-rod cylinder

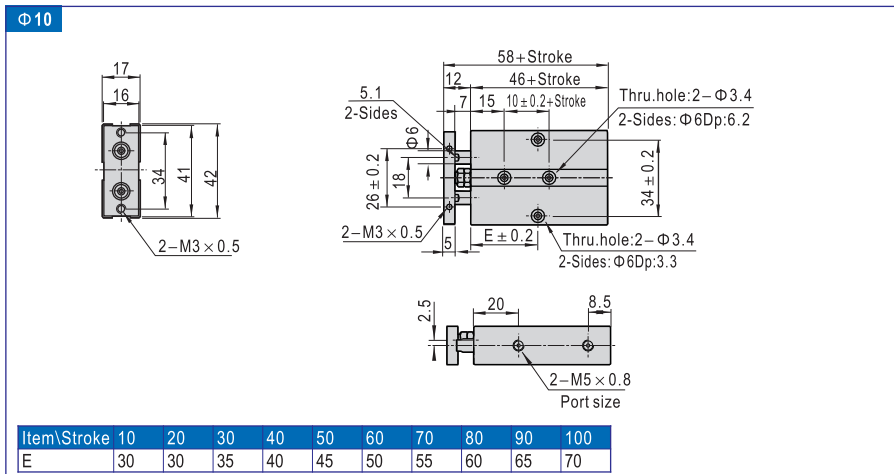


TN Series

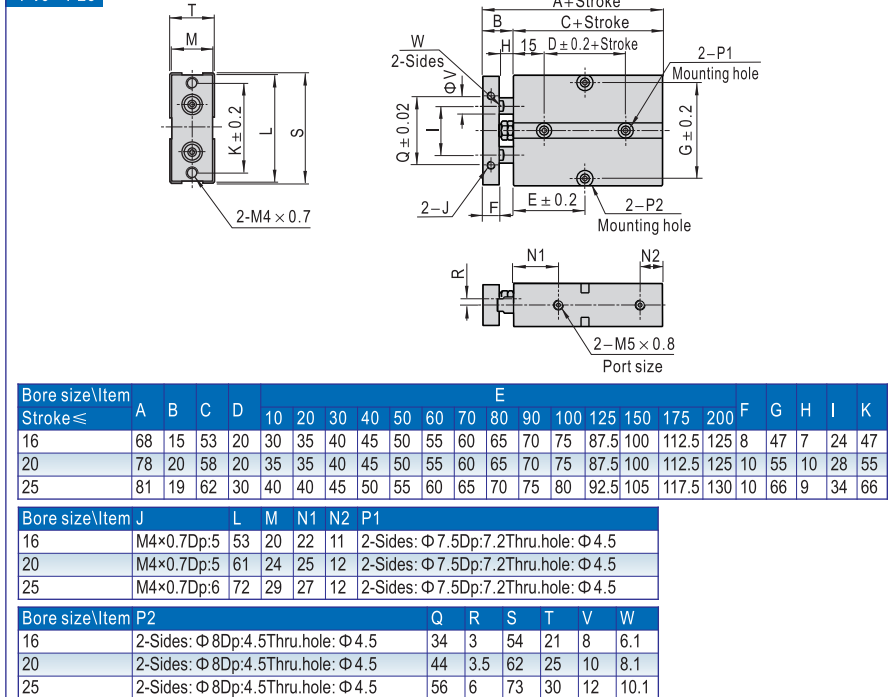
Max. weight of allowable side-load



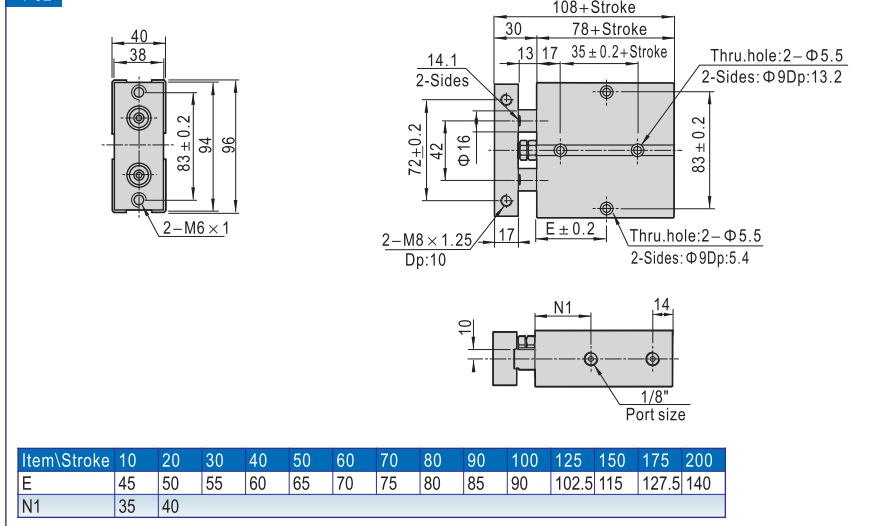
Dimensions



Φ16-Φ25



Φ32



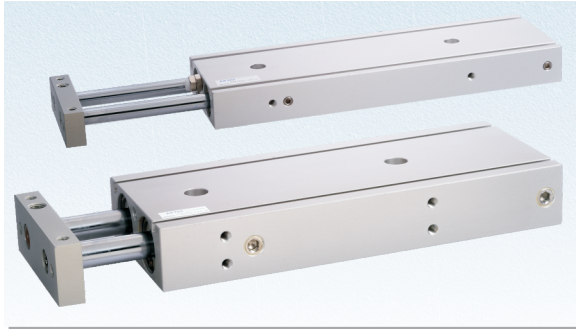
TN,TR



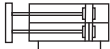
Twin-rod cylinder



TR Series



Symbol



Product feature

- JIS standard is implemented.
- The non-rotating precision is high and deflection of the end of piston rod is low, which is suitable for precise guide.
- It adopts lengthening type sliding supporting guide. No additional lubricant is needed and it has good performance of guide.
- Mounting holes on three sides facilitates multi-position mounting.
- It is good resistance to bending and twisting moments.
- Except for the axial, each side of the cylinder has installation orifices to provide several installation and fixation ways for the customers.
- There are two groups of air intake and outlet at two sides of the cylinder for the actual selection.
- Bumper in front of the barrel can adjust the stroke of cylinder and relieve impact.
- Standard configuration of this series has magnet and the type without magnet is not available.



TN,TR

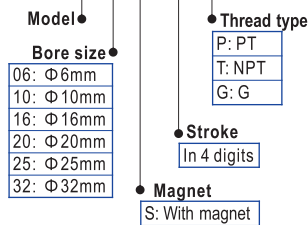
Ordering code

Model can be changed Ordering code. Example:

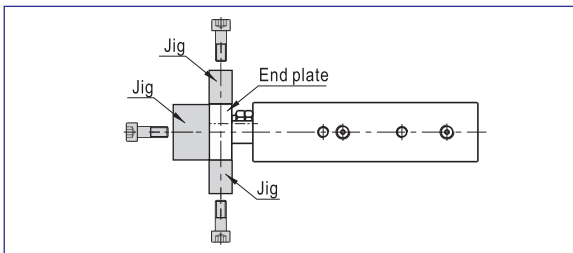
Production type: TR
 Bore size: 32mm
 Stroke: 175mm
 Magnet: With magnet
 Thread type: NPT

Model: TR-32 x 175-S-T

Ordering code: TR 32 S 0175 T



How to mount



Specification

Bore size(mm)	6	10	16	20	25	32
Acting type	Double acting					
Fluid	Air(to be filtered by 40 μm filter element)					
Operating pressure	0.1~1.0MPa(14~145psi)					
Proof pressure	1.5MPa(215psi)					
Temperature °C	-20~70					
Speed range mm/s	30~500					
Adjustable stroke mm	-5~0					
Stroke tolerance	+1.0 0					
Cushion type	Bumper					
Non-rotating tolerance ①	± 0.2°	± 0.15°				± 0.1°
Port size ②	M5 x 0.8					1/8"

① Retract position.

② PT thread, NPT thread and G thread are available. Add) Refer to P403-426 for detail of sensor switch.

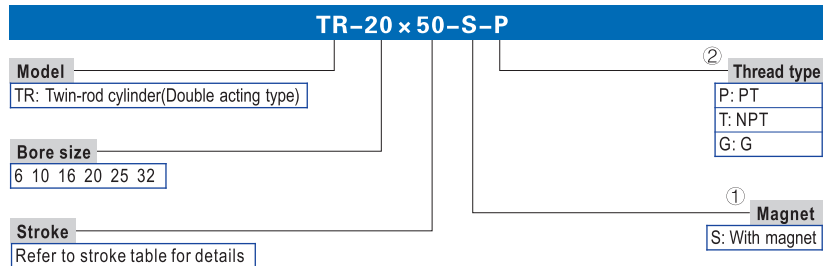
Stroke

Bore size (mm)	Standard stroke (mm)															Max. stroke		
6	10	20	30	40	50											50		
10	10	20	30	40	50	60	70	75	80	90	100					100		
16	10	20	30	40	50	60	70	75	80	90	100	125	150	175	200			200
20	10	20	30	40	50	60	70	75	80	90	100	125	150	175	200			200
25	10	20	30	40	50	60	70	75	80	90	100	125	150	175	200			200
32	10	20	30	40	50	60	70	75	80	90	100	125	150	175	200			200

Note) 1. Please contact the company for other special strokes.

2. The dimensions of non-std stroke cylinder has the same dimensions as the next longer stroke std. stroke cylinder. e.g. 23mm stroke cylinder has the same dimensions of 25 std. stroke cylinder.

Explain of model



① TR Series are all with magnet.

② When the thread is standard, the code is blank.

Inner structure and material of major parts

NO.	Item	Material	NO.	Item	Material
1	Screw	Carbon steel	10	Piston	Φ6,10 SUS304
2	Fixing plate	Aluminum alloy	11	Wear ring	Other Aluminum alloy
3	Bumper	POM	12	Back cover	Nylon 6
4	Screw	Free cutting steel	13	Bumper	TPU
5	Nut	Carbon steel	14	Piston seal	NBR
6	Piston rod	Φ25,32 Carbon steel Other SUS304	15	Magnet holder	Φ6,10 SUS304 Other Aluminum alloy
7	C clip	Spring steel	16	Screw	Carbon steel
8	Front cover	Aluminum alloy	17	Body	Aluminum alloy
9	Magnet	Φ32 Plastic Other Sintered metal(Neodymium-iron-boron)	18	Back cover O-ring	NBR
			19	Wiper seal	NBR

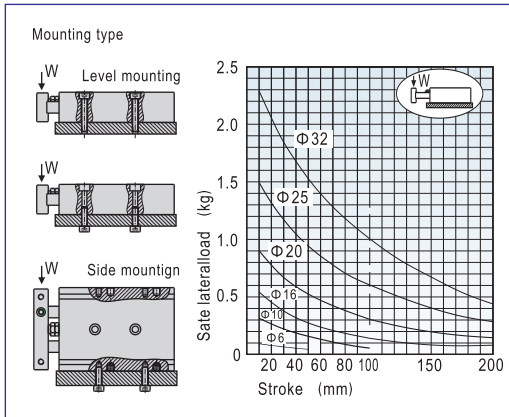


Twin-rod cylinder

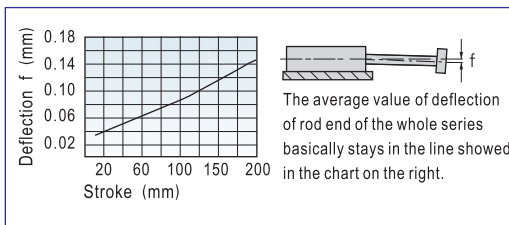


TR Series

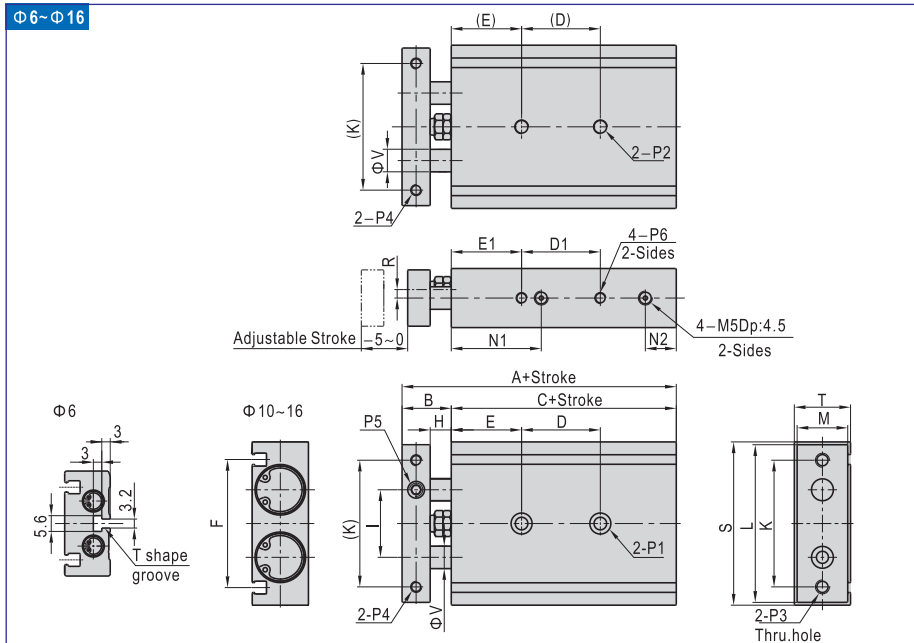
Max. weight of allowable side-load



Safe deflection



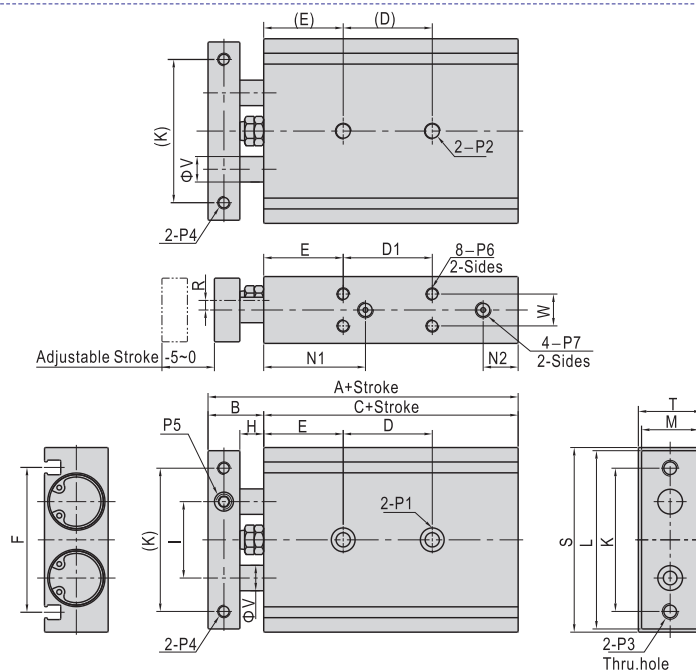
Dimensions



Bore size\Item Stroke	A B C			D D1								E E1		F H		I K		L M		N1 N2	
	10-25	30-50	60-80	90-100	125	150	175	200	13	10	25.8	8	16	28	35	14	24.5	6.5			
6	58.5	13.5	45	-	-	-	-	-	13	10	25.8	8	16	28	35	14	24.5	6.5			
10	72	17	55	30	40	50	60	-	20	20	36.5	9	20	35	44	15	30	8			
16	79	19	60	25	35	45	55	65	75	145	145	30	30	46.5	9	25	45	56	18	38	8

Bore size\Item Stroke	R S T V				P1		P2		P3		P4		P5		P6	
	6	10	16	20	One-side: Φ 6.5Dp:3.3Thru.hole: Φ 3.4	One-side: Φ 6.5Dp:3.3Thru.hole: Φ 3.4	M4×0.7Dp:7	M4×0.7	M3×0.5Thru.hole	M3×0.5	M3×0.5Thru.hole	M3×0.5	M3×0.5Dp:4.5			
6	4.5	37	16	4	One-side: Φ 6.5Dp:3.3Thru.hole: Φ 3.4	One-side: Φ 6.5Dp:3.3Thru.hole: Φ 3.4	M4×0.7Dp:7	M4×0.7	M3×0.5Thru.hole	M3×0.5	M3×0.5Thru.hole	M3×0.5	M3×0.5Dp:4.5			
10	3.5	46	17	6	One-side: Φ 6.5Dp:3.3Thru.hole: Φ 3.4	One-side: Φ 6.5Dp:3.3Thru.hole: Φ 3.4	M4×0.7Dp:7	M4×0.7	M3×0.5Thru.hole	M3×0.5	M3×0.5Thru.hole	M3×0.5	M3×0.5Dp:5			
16	5	58	20	8	One-side: Φ 8.0Dp:4.4Thru.hole: Φ 4.3	One-side: Φ 8.0Dp:4.4Thru.hole: Φ 4.3	M5×0.8Dp:8	M5×0.8	M4×0.7Thru.hole	M4×0.7	M4×0.7Thru.hole	M4×0.7	M4×0.7Dp:5			

Φ20-Φ32



Bore size\Item Stroke	A B C			D D1								E F		H I		K L		M N1		N2 R		S T		V	
	10-25	30-50	60-100	125	150	175	200	52	12	28	50	62	23	46	9	6.5	64	25	10						
20	94	24	70	30	40	60	80	80	100	100	30	52	12	28	50	62	23	46	9	6.5	64	25	10		
25	96	24	72	30	40	60	80	80	100	100	30	61	12	35	60	78	28	43	9	9	80	30	12		
32	112	30	82	40	50	70	90	90	110	110	30	73	14	44	75	96	36	53	10	11.5	98	38	16		

Bore size\Item Stroke	W P1		P2		P3		P4		P5		P6		P7	
	20	25	32	One-side: Φ 9.5Dp:5.3Thru.hole: Φ 5.2	One-side: Φ 9.5Dp:5.3Thru.hole: Φ 5.2	M6×1.0Dp:10	M5×0.8	M4×0.7Dp:6	M8×1.25	M4×0.7Dp:7	M5×0.8	M5×0.8	M5×0.8	
20	9.5	13	20	One-side: Φ 9.5Dp:5.3Thru.hole: Φ 5.2	One-side: Φ 9.5Dp:5.3Thru.hole: Φ 5.2	M6×1.0Dp:10	M5×0.8	M4×0.7Dp:6	M8×1.25	M4×0.7Dp:7	M5×0.8	M5×0.8	M5×0.8	
25	13	20	25	One-side: Φ 11Dp:6.3Thru.hole: Φ 6.8	One-side: Φ 11Dp:6.3Thru.hole: Φ 6.8	M8×1.25Dp:12	M6×1.0	M5×0.8Dp:7.5	M8×1.25	M5×0.8Dp:7	1/8"	1/8"	1/8"	
32	20	25	32	One-side: Φ 11Dp:6.3Thru.hole: Φ 6.8	One-side: Φ 11Dp:6.3Thru.hole: Φ 6.8	M8×1.25Dp:12	M6×1.0	M5×0.8Dp:8	M10×1.5	M5×0.8Dp:7	1/8"	1/8"	1/8"	



TN, TR



